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National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
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Seattle, WA 98115

Refer to:
OSB2000-0315

February 14, 2001

Mr. Fred P. Patron
Senior Transportation Planning Engineer
Federal Highway Administration, Oregon Division
530 Center Street NE
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Re: Formal Section 7 Consultation and Essential Fish Habitat Consultation for Lower Eightmile Road Bridge Replacement, Wasco County, Oregon

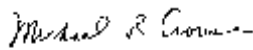
Dear Mr. Patron:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) that addresses the proposed Lower Eightmile Road/Eightmile Creek Bridge replacement in Wasco County, Oregon. The NMFS concludes in this Opinion that the proposed action is not likely to jeopardize the subject species, or destroy or adversely modify critical habitat. This Opinion includes reasonable and prudent measures with terms and conditions that NMFS believes are necessary and appropriate to minimize the potential for incidental take associated with this project.

In addition, this document also serves as consultation on Essential Fish Habitat (EFH) under Public Law 104-267, the Sustainable Fisheries Act of 1996, as it amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson Stevens Act). An EFH analysis is required for chinook salmon (*Oncorhynchus tshawytscha*).

Questions regarding this letter or attached Opinion should be directed to Pat Oman of my staff in the Oregon State Branch Office at (503) 231-2313.

Sincerely,


P.S.

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Official Branch Electronic File Location for Biological Opinions


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EFH Log #: yes ~ chinook


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Endangered Species Act - Section 7 Consultation
&
Magnuson - Stevens Act
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Lower Eightmile Road/Eightmile Creek Bridge Replacement
Wasco County, Oregon

Agency: Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: February 14, 2001

Refer to: OSB2000-0315

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1. ENDANGERED SPECIES ACT

1.1. Background

On December 18, 2000, the National Marine Fisheries Service (NMFS) received a biological assessment (BA) and request from the Oregon Department of Transportation (ODOT) for Endangered Species Act (ESA) section 7 formal consultation for a bridge replacement project on Eightmile Road in Wasco County, Oregon. The FHWA is funding the proposed repairs, and is the lead agency for the project. Oregon Department of Transportation (ODOT) has designed the project and will administer the construction contract. This biological opinion (Opinion) is based on the information presented in the BA and the result of the consultation process.

The FHWA/ODOT has determined that Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*) may occur within the project area. MCR steelhead were listed as threatened under the ESA on March 25, 1999 (64 FR 14517). The proposed project is within MCR steelhead critical habitat, which was designated February 16, 2000 (65 FR 7764). Protective regulations were issued for MCR steelhead under Section 4(d) of the ESA on July 10, 2000 (65 FR 42423). The FWHA/ ODOT, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect MCR steelhead.

The FWHA/ODOT is proposing to replace a structurally deficient, seismically vulnerable bridge that spans Eightmile Creek in Wasco County, Oregon. The bridge, number 106, is located on Eightmile Road; at the eastern end of the bridge there is a “Y” intersection where Fifteenmile Road and Eightmile Road come together. This is also where Eightmile Creek enters Fifteenmile Creek from the south. From this point, Fifteenmile Creek flows generally westward about 2.2 miles to its confluence at river mile 192.2 with the Columbia River, near the Celilo Pool in The Dalles, Oregon. The existing bridge is located just upstream of the confluence of Eightmile Creek and Fifteenmile Creek. Because the “Y” intersection of Fifteenmile and Eightmile Roads is unsafe, these roads will be reconfigured to make Fifteenmile Road “T” into Eightmile Road at a location that is east of the existing intersection. This will move the intersection upland and away from both Fifteenmile and Eightmile Creeks. The project area includes the approach to the existing bridge from the west, the old bridge itself, the site of the new bridge, and the site of the new intersection, from a point that is 100 feet upstream of Eightmile Creek adjacent to the new intersection, and 200 feet downstream of the confluence of Eightmile and Fifteenmile Creeks.

This Opinion reflects the results of the consultation process. The consultation process involved site visits by two different NMFS biologists, ODOT staff, and the ODFW biologist on March 29, 2000, and on September 11, 2000, and correspondence and communications on November 2, 2000 and January 5, 2001 to obtain additional information and clarify the BA.

The objective of this Opinion is to determine whether the actions to replace the Eightmile Creek Bridge on Eightmile Road, and reconfigure the intersection of Fifteenmile Road and Eightmile Road, are likely to jeopardize the continued existence of MCR steelhead, or destroy or adversely modify the species' critical habitat.

1.2. Proposed Action

The proposed project will replace a structurally deficient bridge with one that is less vulnerable to seismic events, and capable of handling heavier loads (although no increase in traffic is anticipated as a result of this project). The bridge serves a route that is identified by Oregon Emergency Management as a Lifeline Route. The two roads that intersect just to the east of the bridge will be realigned, and the old bridge will be demolished. A description of three main project components follows.

1.2.1. Realignment of Eightmile and Fifteenmile Roads

In addition to replacement of the bridge, Wasco County proposes to realign the Fifteenmile and Eightmile roads near the bridge for safety purposes. The "Y" intersection of Fifteenmile Road and Eightmile Road at the eastern end of the bridge is at a very sharp skew with limited sight distance. Eightmile Road to the east of the bridge (upstream) will be realigned by shifting the road slightly to the north, or away from Eightmile Creek. Fifteenmile Road will be realigned to "T" into Eightmile Road perpendicularly. This new alignment will allow the existing bridge to remain in place for traffic while the new bridge is being constructed.

The area of the new intersection and roadway alignments will be cleared and all vegetation removed. Utilities will be moved as required, and grading, excavation, and construction for the roadway embankments will be done.

Constructing the new alignments will result in the removal of a minor amount of upland vegetation and some riparian vegetation in those areas where the new alignment approaches the site of the new bridge. The changes to riparian habitat are addressed below, in the discussion about bridge replacement.

Relocation of the intersection will move traffic and all the attendant effects of that traffic (noise, dust, and residual pollution from stormwater runoff) away from the confluence of Eightmile and Fifteenmile Creeks.

After construction of the new bridge is complete, the realigned roadways will be paved.

1.2.2. Bridge Replacement

The existing structure, built in 1917, is a three span reinforced concrete deck girder bridge spanning 65 feet. The roadway width across the structure is 20 feet. The existing rail is outdated guardrail mounted

to the side of the deck. Spalling of the girders has exposed rebar at midspan. The upstream (eastern) footings of the bridge are in the active flowing channel; the downstream (western) footings are out of the water, but in the two year floodplain.

The proposed new bridge will be located approximately 30 feet upstream of the existing bridge. The new structure will be a single span bridge with a length of 101.7 feet along the roadway centerline. The superstructure will consist of five precast, prestressed beams with a concrete deck and end panels. The bridge will be equipped with curbs to direct stormwater runoff to a constructed stormwater bioswale that will be designed to have a nine minute retention time before discharging to either Eightmile or Fifteenmile creek. The bridge will not have sidewalks or protective fencing but will have a two-tube curb mount rail.

The construction of the new bridge would be accomplished in stages, with the following generally sequential steps:

- 1) Erosion control measures, as specified in the Erosion Control Plan, will be put in place, and the areas of riparian vegetation that are outside of the limits of construction will be flagged to ensure that no work takes place in this zone.
- 2) The stream bank in the abutment areas of the new bridge will be reconfigured, with removal of riparian vegetation in the location of the approaches, bents, and wingwalls. Fill will be placed in the areas of the bridge approaches, behind the bridge abutments. The bridge foundation, including structural excavation at the bridge ends and the formwork and concrete placement for the proposed spread footings and abutment walls, will be constructed. This activity will not cause any constriction of the stream channel.
- 3) Any contaminated water during the toe trench excavation will be appropriately treated prior to disposal. No green concrete shall come in contact with the stream and no equipment will operate in the creek. No cement equipment washout will occur at the project site, or if it does, then all washout water will be sufficiently contained and transported offsite for disposal. Water will not be withdrawn from the creeks for any construction purpose.
- 4) During excavation of the toe trench and placement of riprap, no equipment will be allowed to work within the stream/streambed except for the bucket. Excavation work for the riprap toe trenches will involve the de-watering of the excavation sites, in order to ensure that this phase of construction - excavation of the toe trench and placement of riprap - will be isolated from actively flowing water.
- 5) In order to eliminate water from the toe trench work area, sandbags and plastic sheeting will be used to create a temporary dam above the excavation sites. Additionally, a secondary dam may be placed between the work area and the primary dam to contain water that seeps under

the primary dam. Then, the water in the area to be isolated will be removed using either a metal culvert pipe to drain the water downstream, or by pumping the water out of the reservoir using a flexible hose and an intake that is screened to ODFW standards (3/32 inch mesh). If necessary, a geotextile barrier will be placed upstream to prevent fish from approaching the work isolation area. Any fish present in the area to be de-watered will be relocated under the supervision of ODFW. Fish passage will be maintained throughout the operation pursuant to guidelines described in Oregon Revised Statutes (ORS) 498.268 and 509.605. Fish inside the dewatered zone will be captured either by seining or electrofishing. If electrofishing is the method used, the operation will conform to the minimum standards described in the NMFS guidelines issued in June, 2000 (NMFS 2000). The work isolation structures may be in place for the duration of the in-water work period.

- 6) The stream bank work under the bridge will be completed, including excavation of a toe trench and the individual placement of Class 350 riprap using a trackhoe or similar equipment. Then the precast girders will be craned into place over the creek. After the bridge girders are in place, guards and guardrail posts will be installed, formwork and pouring of the concrete bridge deck and curbing will take place, and the concrete impact panels off each end of the bridge will be constructed. During this phase, containment measures to ensure that construction debris does not enter the two year flood plain will be in place.
- 7) A stormwater bioswale inlet that will be planted with native vegetation will be located off the southwest corner of the new bridge, at the low point of the vertical curve and the low side of the superelevated horizontal curve. This bioswale will be constructed within the right of way of the old alignment of Fifteenmile Road, on the west end of the old bridge. The runoff from the bridge and adjacent roadways will be directed to the vegetated bioswale, which is designed for a nine minute retention time.
- 8) Completion of roadwork, including any remaining stream bank work, plantings, and striping, will be carried out as the final phase of the bridge construction project.
- 9) Since the contractor will be in charge of the construction schedule, the staging of these tasks may be somewhat different than what is shown above. For instance, construction of the bioswale and other mitigation measures may be concurrent with other construction activities. If construction of the bioswale takes place late in the construction schedule, erosion control measures to prevent sedimentation into the creeks will be employed until the bioswale is functioning properly to contain and filter stormwater runoff.
- 10) Once these activities have been completed, traffic will be placed on the new alignment and bridge and the removal of the old bridge would begin.

1.2.3. Bridge Demolition and Removal

A specific plan for demolition and removal of the existing bridge has not been prepared. It is anticipated that removal of the existing structure would be accomplished using a stepwise procedure with the following actions:

- 1) A catchment structure will be built. The catchment structure would consist of a geotextile fabric "diaper" suspended by cables stretched across the creek under the bridge and attached to the bridge columns. The existing guardrail and supports will be removed, and then the bridge deck and associated components will be taken out in sections. No explosives will be used to demolish the bridge. Instead, a tracked excavator or a crane will be used to grab large pieces of the bridge and hold them in place while a jack hammer or equipment mounted hydro-hammer is used to break the section loose, freeing it from the bridge. The large pieces thus freed will be placed in a truck and hauled to an approved upland disposal facility.
- 2) The bridge piers and concrete bents will be removed. The columns of the piers will be removed down to the water surface, and those of the bents down to the ground surface. The footings below the columns in the creek bed would be left in place, as this option would be less environmentally destructive than trying to remove them, and because they will cause no additional constriction of stream flow. All exposed metal, if any, will be cut off below the concrete surface and sealed with a minimum of two inches of grout. The old bridge abutments will be removed.
- 3) The fabric diaper would be taken down carefully to ensure that no construction debris caught by the diaper falls into the creek or floodplain. The bank slopes would be cleaned up and groomed to tie in with the surrounding channel, and permanent seeding and mulching and vegetative plantings would be done during October and November, finishing up the project.
- 4) No equipment will be allowed to operate in flowing water during this phase of the project. A disposal site for excess material has been identified and disposal of any fill will comply with all applicable state and federal statutes. More details on conservation measures and terms and conditions can be found in Section 8.3, below.

1.3. Biological Information and Critical Habitat

The MCR steelhead Evolutionarily Significant Unit (ESU) was listed as threatened under the ESA by the NMFS on March 25, 1999 (64 FR 14517). Protective regulations were issued for MCR steelhead under Section 4(d) of the ESA on July 10, 2000 (65 FR 42423). Biological information concerning the MCR steelhead is found in Busby et al. (1996). The current status of the MCR steelhead, based upon their risk of extinction, has not significantly improved since the species was listed, although these fish

came under ESA protection so recently that it is difficult to discern any meaningful trends in the data that have been gathered since listing and conservation measures went into effect.

Fifteenmile Creek and its tributaries, which include Eightmile Creek and Fivemile Creek, contain sympatric populations of winter steelhead and resident redband trout (*Oncorhynchus mykiss gairdneri*). Data gathered on steelhead in the Deschutes River (which flows into the Columbia about ten miles upstream of the mouth of Fifteenmile Creek) provides some information on the likely composition of MCR steelhead in the project vicinity. Mark-recapture studies done over a 20 year period indicate an increasing number of hatchery strays migrating into and spawning in the Deschutes basin (Chilcote 1998), with a concomitant decline in the percentage of wild steelhead. At the same time, the density of resident redband trout has remained relatively stable, which suggests that the declines in wild steelhead may be attributed to low out-of-basin survival and “maladaptive genetic change” as a result of the high incidence of naturally spawning stray hatchery steelhead (Chilcote, 1998).

Critical habitat was designated for the MCR steelhead on February 16, 2000 (65 FR 7764). Critical habitat for MCR steelhead encompasses the major Columbia River tributaries known to support this ESU, including the Deschutes, John Day, Klickitat, Umatilla, Walla Walla, and Yakima Rivers, as well as the Columbia River and estuary. Critical habitat consists of all waterways below long-standing, naturally impassable barriers, which includes the project area. The adjacent riparian zone is also considered critical habitat. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter. Protective regulations for MCR steelhead were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423).

In addition, the Oregon Division of State Lands (ODSL) in cooperation with the Oregon Department of Fish and Wildlife (ODFW) has designated specific waterways in the mid Columbia River ESU as Essential Indigenous Anadromous Salmonid Habitat under Oregon Administrative Rules (OAR), OAR 141-102-000. Fifteenmile Creek and associated tributaries, including Eightmile Creek, are designated as essential habitat; therefore, compliance with these policies and guidelines is also mandatory. Essential indigenous anadromous salmonid habitat, or essential habitat, means the habitat that is necessary to prevent the depletion of indigenous anadromous salmonid species during their life history stages of spawning and rearing. OAR 141-102-000 stipulates policies and standards, which must be complied with in these designated areas. Filling or removal in essential habitat is presumed by ODSL to be detrimental to indigenous anadromous salmonids and authorization of fill or removal will only be authorized if it can be shown that only acceptable adverse impacts to indigenous anadromous salmonids or their essential habitat will occur or the removal/fill will benefit populations of indigenous salmonids.

1.4. Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: (1) Defining the biological requirements and current status of the listed species; and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for juvenile and adult migration, spawning, and rearing of Middle Columbia River steelhead under the existing environmental baseline. NMFS' Essential Fish Habitat (EFH) analysis considers the effects of proposed actions on EFH and associated species and their life history stages, including cumulative effects and the magnitude of such effects.

1.4.1. Biological Requirements

The first step in the methods the NMFS uses for applying the ESA section 7(a)(2) to listed salmon and steelhead is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list Middle Columbia River steelhead for ESA protection, and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for MCR steelhead to survive and recover to naturally reproducing population levels at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing.

Steelhead in the Fifteenmile Creek basin are genetically allied with other steelhead trout (*Oncorhynchus mykiss*), which are typically summer-run stocks. However, the Fifteenmile Creek steelhead are late winter-run. The population in Fifteenmile Creek represents the eastern limit of the distribution of Columbia River wild winter steelhead (CRITFC, 1995). Winter steelhead trout are also found in the Klickitat and White Salmon rivers of Washington (Busby et al., 1996).

Winter steelhead inhabit the Fifteenmile Creek basin, including the tributaries of Fivemile and Eightmile Creeks. Natural spawning areas include Eightmile Creek and Fifteenmile Creek. Fivemile and Ramsey Creeks also have suitable steelhead spawning and rearing habitat (Pribyl, personal communication, 2000). Steelhead are widely distributed throughout the Fifteenmile creek basin, having been found in virtually all of the major tributaries. Various surveys show that, in general, steelhead and other salmonid species primarily use the middle to upper reaches of the watershed for spawning and rearing because these areas have better physical habitat and water quality (Pribyl, personal communication, 2000).

Steelhead in the basin are late run stocks entering the basin in early February with the peak in-migration in late March. Spawning typically begins in April and continues through May. Juveniles typically rear in freshwater through the following year, emigrating from February through May after two years of freshwater residence. Adults return after one or two years in the ocean. In recent years the run size in the Fifteenmile Creek system (Fifteenmile, Eightmile, Fivemile, and Ramsey creeks) is approximately 500 returning adults (Pribyl, personal communication, 2000). Additional life history information for mid Columbia River ESU winter steelhead can be found in Busby et al. (1996).

Eightmile Creek in the vicinity of the project is primarily used by salmonids for upstream and downstream migratory purposes. No spawning or rearing occurs in the project vicinity during the low flow months, although some rearing and feeding activity by juveniles likely occurs during their downstream migration. Portions of Fifteenmile Creek and its tributaries are designated as essential indigenous anadromous salmonid habitat by the ODSL (see discussion above, in section 1.3.).

NMFS concluded that the MCR steelhead are not presently in danger of extinction, but likely to become extinct in the foreseeable future (NOAA 1996). This is primarily due to the declining abundance of natural runs. A significant problem for MCR steelhead in the Columbia River Basin are the mainstream Columbia dams that inhibit migration, and the many water diversions and withdrawals

for agricultural purposes that affect water quality. The degradation of freshwater habitat throughout the region is the primary reason that MCR steelhead and other salmonids in the region are at risk.

1.4.2. Environmental Baseline

The current range-wide status of the identified ESU may be found in Busby et al. (1995, 1996). The identified action will occur within the range of MCR steelhead. The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, stream hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed, where actions described in this Opinion lead to additional activities, or affect ecological functions, contributing to stream degradation. As such, the action area for the proposed activities include the immediate portions of the watershed containing the project and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and riparian habitat of Eightmile and Fifteenmile Creeks, upstream from the project 100 feet, and downstream 200 feet.

Both Eightmile Road and Fifteenmile Road run through the valleys of the creeks that have given them their names for some distance. These roads are the principal transportation arteries for agricultural products from the farms in that area of Wasco County, and provide the sole farm-to-market access for wheat haulers in Wasco County's Columbia District. The lower reaches of the Eightmile Creek watershed have been highly manipulated in the past 50 years, with the land being used primarily for agriculture and rangeland. The creek has been relocated and channelized in many areas to maximize agricultural production. This has led to severe degradation of instream habitat as well as degradation of the riparian area leading to very limited aquatic habitat complexity. Because of channelization and riparian degradation, sediment transport to the stream is severe. It is estimated that 75 to 100 tons/acre/year of sediment is delivered to the channel (Newton, pers. comm., 2000). The upper 1/3 to 1/2 of the watershed is forested. Conditions in the upper watershed are better but are limited by lack of large woody material in the channel and by low flows during the summer months.

During both field visits, the area within an approximately 50 yard radius of the existing bridge was assessed. Within the project area, Eightmile Creek is a moderate gradient stream with low sinuosity. The channel is constrained by steep (45 degrees or steeper) primary terraces eight to 12 feet above normal bankfull level. The stream banks under the existing bridge are riprapped. In other areas banks are stabilized by vegetation and no areas of active erosion were observed. Instream habitat within the immediate project area is best described as primarily riffle areas with some small pools, although short glide areas were observed. Observed wetted-width during the March site visit was approximately 15 feet with depths ranging from 6 to 12 inches. Normal bankfull width was estimated at 20 feet and bankfull depth at approximately 36 inches. Substrate is dominated by large gravel/cobble, with areas of bedrock and occasional boulders. Bedrock is more common upstream of the bridge. Silt/sand has filled most interstitial spaces between gravel/cobble, resulting in a high level of

embeddedness. No large woody material (LWM) was observed. The only cover available is the interstitial spaces in the instream boulders and overhanging vegetation.

The project area is believed to provide primarily migratory habitat for steelhead, although a limited amount of juvenile feeding and rearing may occur in the project area. No spawning is known to occur in the vicinity (Pribyl, pers. comm. 2000). Cutthroat trout and resident redband trout may occur here but the lack of LWM and other cover make it unlikely that they are regularly present. Natural conditions such as low stream gradient, low summer flows, and high summer water temperatures make this area of Eightmile Creek prone to periods of poor water quality during the summer and act to limit or preclude salmonid fish use between July and October. It is not expected that individual juvenile steelhead trout or cutthroat trout would be present during the demolition and construction phases of the project. Water quality (temperature and flow volume) during the proposed construction timing would likely preclude use of this area by juveniles or adults. Water temperatures in the project area during this time period regularly exceed 64 °F, often exceeding 70 °F, and may have 7 day daily maximums exceeding 77 °F (DEQ 1999), rendering the project area unsuitable for rearing of salmonids. Therefore, salmonid use in the vicinity of the project during construction activities would not be expected. In addition, all in-water work will be conducted during the ODFW approved work window of July 1 through November 30. This window was designed to minimize exposure to salmonids by being outside of the periods of migration.

Currently, the mainstem of Eightmile Creek from the mouth to Wolf Run Ditch is listed under the Clean Water Act's Section 303(d), *List of Water Quality Limited Water Bodies*, for flow modification, temperature (summer), habitat modification, and sedimentation (ODEQ 1999), indicating that this stretch of river does not meet water quality standards for these parameters. The project is located within this water-quality limited stretch of Eightmile Creek. Water quality in the upper reaches of the Eightmile Creek watershed is considered good although low flows and habitat degradation are still issues. The Oregon Department of Fish and Wildlife (ODFW) and the U.S. Forest Service conduct some water quality monitoring within the Eightmile Creek watershed.

Based on the best available information on the current status of MCR steelhead range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area (as described in the BA), NMFS concludes that the biological requirements of the identified ESU within the action area are not currently being met. Numbers of steelhead are substantially below historic numbers. Recovery trends show no clear pattern due to lack of long-term data. Degraded freshwater habitat conditions, which include the effects of grazing, irrigation, water withdrawals, and residential use, have contributed to the decline.

The NMFS Matrix of Pathways and Indicators (NMFS 1996) was used to assess the current condition of various steelhead and salmon habitat parameters. Use of the Matrix identified the following habitat indicators as either at risk or not properly functioning within the action area: Water temperatures, turbidity/sediment, chemical contaminants/nutrients, substrate, large woody debris, pool frequency and

quality, off-channel habitat, refugia, streambank condition, width to depth ratio within the stream, floodplain connectivity, peak/base flows, drainage network increase, road density and location, and disturbance history and regime. Actions that do not maintain or restore properly functioning aquatic habitat conditions have the potential to jeopardize the continued existence of MCR steelhead.

1.5. Analysis of Effects

1.5.1. Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document, *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The effects of proposed actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the project area.

The proposed action has the potential to cause the following impacts to threatened MCR steelhead or designated critical habitat:

1. In-water work may cause direct adverse impacts to any juvenile steelhead that may be present near the work site.

The construction activity has the potential to directly harm MCR steelhead due to handling or otherwise disturbing rearing juveniles. Placement of riprap along the embankment may alter fish rearing and migration behavior. Short-term increases in sediment and turbidity could reduce light penetration and inhibit primary production, abrade and clog fish gills, prevent feeding by sight feeders, stop migration, and cause any fish in the area to avoid the disturbed reaches of the creek. The effects of these activities on MCR steelhead will be minimized by limiting construction work to the ODFW-approved in-water work period.

2. Riparian function and stream channel morphology may be altered, causing indirect adverse impacts to steelhead.

Increased sedimentation may result in minor siltation of downstream spawning gravels. There is a potential for changes in channel conditions and dynamics following the placement of riprap. The new bridge will have an increased surface area and larger areas of riprap than the existing bridge; this will result in a net loss of riparian habitat. There will also be a net increase in impervious surfaces of 1,973 square yards; this will be offset, to some degree, by the construction of a bioswale (which will filter sediment and pollutants) and by associated improvements in stormwater runoff (the elimination of stormwater running directly into the creek, as is currently the case).

The effects of these activities on MCR steelhead and aquatic habitat factors will be limited by implementing construction methods and approaches that are included in project design and intended to avoid or minimize impacts. These include:

1. All in-water work will be conducted during the ODFW-approved in-water work period of July 1 to November 30. This will avoid impacts to migrating adult steelhead.
2. Alteration and disturbance of stream banks and existing riparian vegetation will be minimized to the maximum extent possible. When working within the two-year floodplain, bank protection material will be placed to maintain normal waterway configuration.
3. ODOT will minimize the amount of riprap used, and place only clean, non-erodible, upland angular rock of sufficient size to ensure long-term armoring. Within the two year floodplain, riprap will be placed in such a manner that the width of the active channel will not be constricted.
4. Riparian habitat will be protected by flagging the areas to be cleared prior to construction. Areas outside of the flagged zone will not be impacted.
5. Native vegetation will be maintained wherever possible. Shrubs and trees will be removed by clipping at ground level, and not grubbed out of the soil, except in those areas of construction where complete removal is necessary. Invasive exotic species will not be protected.
6. Riparian vegetation will be replaced at a rate of 1.5:1. Disturbed riparian areas in the project vicinity will be replanted with native vegetation.

For the proposed action, the NMFS expects that the effects of the proposed project will tend to maintain each of the habitat elements over the long term, greater than two years. However, in the short term, a temporary increase in sediment entrainment and turbidity, and disturbance of riparian and instream habitat is expected. Fish may be killed or temporarily displaced during the in-water work. However, the improved drainage from the new bridge and roadways, and construction of a bioswale to filter stormwater runoff, are expected to provide long-term benefits to fish and other aquatic species. The potential net effect from the proposed action, including proposed plantings, is expected to be the maintenance and restoration of functional steelhead habitat conditions.

1.5.2. Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for MCR steelhead consists of all waterways below naturally impassable barriers, which

includes the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, input of large woody debris or organic matter, and others.

Environmental baseline conditions within the action area were evaluated for the subject actions at the project site and watershed scales. The results of this evaluation, based on the “matrix of pathways and indicators” (MPI) described in *"Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale"* (NMFS 1996), are detailed above. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species and assesses the constituent elements of critical habitat. An assessment of the essential features of MCR steelhead critical habitat is obtained by using the MPI process to evaluate whether aquatic habitat is properly functioning.

The proposed actions will affect critical habitat. In the short term, a temporary increase of sediments and turbidity and disturbance of riparian and instream habitat is expected. In the long term, a net improvement of habitat will occur because the roadway re-alignments will reduce impacts to the riparian zones of Fifteenmile Creek and Eightmile Creek, and the bridge drainage improvements will reduce the input of toxicants coming off of the bridge and roads during precipitation. Consequently, NMFS does not expect that the net effect of this action will diminish the long-term value of the habitat for survival of MCR steelhead.

1.5.3. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area is defined as the streambed and riparian habitat of Eightmile and Fifteenmile Creeks throughout the project area. The action area extends 100 feet upstream of the project site, and 200 feet downstream. The project actions consist of replacing the old bridge and reconfiguring the intersection of Eightmile Road and Fifteenmile Road, and are detailed in the project description section above. Increased use of the roads is not anticipated as a result of these actions. NMFS is not aware of any significant change in non-Federal activities that are reasonably certain to occur within the action area. NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Other FHWA/ODOT transportation projects may be built in the Eightmile and Fifteenmile watersheds (although none are currently planned). Each of these projects would be reviewed through separate ESA section 7 consultations and are not considered cumulative effects of this project.

1.6. Conclusion

NMFS has determined based on the available information, that the proposed action is not likely to jeopardize the continued existence of MCR steelhead, nor will it destroy or adversely modify critical habitat over the long term. NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NMFS applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse degradation of anadromous salmonid habitat due to sediment impacts, in-water construction, and habitat loss. These effects will be mitigated over the long-term through the implementation of proposed plantings and improved fish passage at the bridges. Direct mortality of rearing juvenile steelhead (if any are present) may occur during the in-water work period of project activities, and there may be some disturbance to migrating steelhead during the latter period of construction (from November 1 to November 30) if there is unexpected precipitation in the early fall that causes smolts to move downstream into the project area.

1.7. Reinitiation of Consultation

Consultation must be reinitiated if: 1) The amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; 2) new information reveals effects of the action may affect listed species in a way not previously considered; 3) the action is modified in a way that causes an effect on listed species that was not previously considered; or, 4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). To reinitiate consultation, ODOT must contact the Habitat Conservation Division (Oregon Branch Office) of NMFS.

2. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and

sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1. Amount or Extent of the Take

The NMFS anticipates that the action covered by this Opinion has more than a negligible likelihood of resulting in incidental take of MCR steelhead because of detrimental effects from increased sediment levels, increased levels of impermeable surfaces, and the minor loss of habitat (non-lethal) and the potential for direct incidental take during in-water work (lethal and non-lethal). Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on steelhead habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the biological assessment, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion. The extent of the take is limited to within the area of project disturbance, extending 100 feet upstream and 200 feet downstream of the project area.

2.2. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. To minimize the amount and extent of incidental take from in-water construction activities at the Eightmile Creek bridge, measures shall be taken to limit the duration and extent of in-water work, and to time such work when the impacts to MCR steelhead are minimized. To ensure the effectiveness of measures to isolate the instream work area and relocate fish, activities shall be monitored as described below in the terms and conditions.
2. To minimize the amount and extent of incidental take from construction activities in or near the creeks, effective erosion and pollution control measures shall be developed and implemented throughout the area of disturbance. The measures shall minimize the movement of soils and sediment both into and within the river, and will stabilize bare soil over both the short term and long term.
3. To minimize the amount and extent of take from loss of instream habitat and to minimize impacts to critical habitat, measures shall be taken to minimize impacts to riparian and instream habitat, or where impacts are unavoidable, to replace or restore lost riparian and instream function.

4. To ensure effectiveness of implementation of the reasonable and prudent measures, all fish handling, erosion control measures, and plantings for site restoration shall be monitored and evaluated both during and following construction, and meet criteria (including requirements for post-construction reporting, and remediation of failed plantings) as described below in the terms and conditions.

2.3. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, FHWA/ODOT must comply with the following terms and conditions, which will implement the reasonable and prudent measures described above. These terms and conditions should be incorporated into construction contracts and subcontracts to ensure that the work is carried out in the manner prescribed. Implementation of the terms and conditions within this Opinion will further reduce the risk of impacts to fish and Eightmile Creek habitat. These terms and conditions are non-discretionary.

1. In-water work: To implement reasonable and prudent measure # 1, above, the FHWA/ODOT shall ensure that:
 - a. Passage shall be provided for both adult and juvenile forms of all salmonid species throughout the construction period. The FHWA/ODOT designs will ensure passage of fish as per ORS 498.268 and ORS 509.605 (Oregon's fish passage guidance).
 - b. All work within the active channel of Eightmile Creek, including bridge demolition, will be completed within the ODFW-approved in-water work period (July 1 to November 30). Any adjustments to the in-water work period will first be approved by, and coordinated with, NMFS and ODFW. An extension of the in-water work period beyond November 30 may require re-initiation of Section 7 consultation.
 - c. Alteration or disturbance of stream banks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration whenever possible.
 - d. During ODOT project design, ODOT will work to minimize the amount of riprap used. Where riprap is necessary, only clean, non-erodible, upland angular rock of sufficient size for long-term armoring will be employed. Unless completely infeasible, placement will be from above the bank line and not "end-dumped."
 - e. The diversion or withdrawal of all water from the stream, if any, and used for construction or for riparian plantings will comply with all state and federal laws, particularly those that require a temporary water right and screening of intakes. The

FHWA/ODOT shall be responsible for informing all contractors of their obligations to comply with existing, applicable statutes.

- f. At least one week prior to the start of in-water work, the ODOT project inspector shall notify the ODOT Regional Environmental Coordinator (REC) of the expected date of construction. The ODOT REC shall then notify NMFS.
 - g. The ODFW biologist shall be responsible for monitoring the construction of work isolation facilities and for ensuring that fish trapped within the work area are removed using the least destructive technology that is feasible. Within six months of the completion of construction, the FHWA/ODOT shall provide a report to NMFS that contains all of the information for reporting take that is contained in the Oregon Department of Fish and Wildlife Scientific Taking Permit application and in the OPSW 2001 Supplemental Application Request (ODFW, 2001). In the project description section, the report shall describe the methods used to isolate and remove fish, and the length of time that the work isolation was in place.
2. Erosion and pollution control: To ensure implementation of reasonable and prudent measure # 2, above, an Erosion Control Plan (ECP) will be prepared by ODOT or the contractor, and carried out by the contractor. The ECP will outline how and to what specifications various erosion control devices will be installed to meet water quality standards, and will provide a specific inspection protocol and time response. Erosion control measures shall be sufficient to ensure compliance with applicable water quality standards and this Opinion. The ECP shall be maintained on site and shall be available for review upon request. The following conditions must be met:
- a. Effective erosion control measures shall be in-place at all times during the contract. Construction within the five-year floodplain will not begin until all temporary erosion controls (e.g., straw bales, silt fences, or other methods) are in place within the riparian area. Erosion control structures will be maintained throughout the life of the contract.
 - i. Erosion control blankets or heavy duty matting (e.g., jute) may be used on steep unstable slopes in conjunction with seeding, or prior to seeding.
 - ii. Biobags, weed-free straw bales and loose straw may be used for temporary erosion control. Temporary erosion and sediment controls will be used on all exposed slopes during any hiatus in work on exposed slopes.
 - b. All exposed areas will be replanted with native vegetation. Erosion control planting, and placement of erosion control blankets and mats (if applicable) will be completed on all areas of bare soil within seven days of exposure within 150 feet of waterways, wetlands or other sensitive areas, and in all areas during the wet season (after October

31). All other areas will be stabilized within 14 days of exposure. Efforts will be made to cover exposed areas as soon as possible after exposure.

- c. All erosion control devices will be inspected throughout the construction period to ensure that they are working adequately. Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, and monthly on inactive sites. Work crews will be mobilized to make immediate repairs to the erosion controls, or to install erosion controls during working and off-hours. Should a control measure not function effectively, the control measure will be immediately repaired or replaced. Additional erosion controls will be installed as necessary.
- d. In the event that soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.
- e. Where feasible, sediment-laden water created by construction activity shall be filtered before it leaves the right-of-way or enters an aquatic resource area.
- f. A supply of erosion control materials (e.g., straw bales and clean straw mulch) will be kept on hand to cover small sites that may become bare and to respond to sediment emergencies.
- g. All equipment that is used for instream work will be cleaned prior to entering the two-year floodplain. External oil and grease will be removed, along with dirt and mud. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment.
- h. Material removed during excavation shall only be placed in upland locations where it cannot enter sensitive aquatic habitat. Conservation of topsoil (removal, storage and reuse) will be employed.
- i. Measures will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.
- j. Project actions will follow all provisions of the Clean Water Act (40 CFR Subchapter D) and DEQ's provisions for maintenance of water quality standards. Toxic substances shall not be introduced above natural background levels in waters of the State in amounts which may be harmful to aquatic life. Any turbidity caused by this project shall not exceed 10% above background as measured 30 feet downstream of the project, per the NPDES permit.

- k. The Contractor will develop and implement an adequate, site-specific Spill Prevention and Countermeasure or Pollution Control Plan (PCP), and is responsible for containment and removal of any toxicants released. The Contractor will be monitored by the ODOT Engineer to ensure compliance with this PCP. The PCP shall include the following:
 - i. A site plan and narrative describing the methods of erosion/sediment control to be used to prevent erosion and sediment for contractor's operations related to disposal sites, borrow pit operations, haul roads, equipment storage sites, fueling operations and staging areas.
 - ii. Methods for confining and removing and disposing of excess construction materials, and measures for equipment washout facilities.
 - iii. A spill containment and control plan that includes: notification procedures; specific containment and clean up measures which will be available on site; proposed methods for disposal of spilled materials; and employee training for spill containment.
 - iv. Measures to be used to reduce and recycle hazardous and non-hazardous waste generated from the project. This information will include the types of materials, estimated quantity, storage methods, and disposal methods.
 - v. The person identified as the Erosion and Pollutant Control Manager (EPCM) shall also be responsible for the management of the contractor's PCP.
- l. Areas for fuel storage, refueling and servicing of construction equipment and vehicles will be located above the 10-year floodplain of any waterbody. Overnight storage of non-wheeled vehicles is allowed within the two year floodplain during the in-water work window; however, to minimize the risk of fuel reaching the water, refueling of these vehicles must not occur after 1 pm (so the vehicles do not have full tanks overnight).
- m. Hazmat booms will be installed in all aquatic systems where significant in-water work will occur, or where significant work occurs within the 5-year floodplain of the system, or where sediment/toxicant spills are possible, as long as the aquatic system can support a boom setup (i.e. the creek is large enough, low-moderate gradient).
- n. Hazmat booms will be maintained on-site in locations where there is potential for a toxic spill into aquatic systems. "Diapering" of vehicles to catch any toxicants (oils, greases, brake fluid) is mandatory when the vehicles have any potential to contribute toxic materials into aquatic systems. As an alternative, non-toxic lubricants (such as vegetable oil) can be used.

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- e. By December 31 of the year following the completion of construction, FHWA/ODOT shall submit to NMFS (Oregon Branch) a monitoring report with the results of the monitoring required in terms and conditions (4(a) to 4(c) above).
- f. Within six months of the completion of construction, FHWA/ODOT shall report any “take” (including handling) associated with the project, using the scientific taking permit form provided by ODFW (ODFW 2001). See also 8.3.1(g), above.

3. ESSENTIAL FISH HABITAT

Public Law 104-267, the Sustainable Fisheries Act of 1996, amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to establish new requirements for “Essential Fish Habitat” (EFH) descriptions in Federal fishery management plans and to require Federal agencies to consult with NMFS on activities that may adversely affect EFH. “Essential Fish Habitat” means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (Magnuson-Stevens Act §3). The Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed Pacific salmon fisheries (PFMC 1999). EFH includes those waters and substrate necessary to ensure the production needed to support a long-term sustainable fishery (i.e., properly functioning habitat conditions necessary for the long-term survival of the species through the full range of environmental variation).

The Magnuson-Stevens Act requires consultation for all actions that may adversely affect EFH, and it does not distinguish between actions in EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

The proposed designated salmon fishery EFH includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except above the impassable barriers identified by PFMC. Salmon EFH excludes areas upstream of longstanding naturally impassable barriers (i.e., natural waterfalls in existence for several hundred years). The proposed action area encompasses the Council-designated EFH for chinook salmon (*Onchorhynchus tshawytscha*).

The objective of this EFH consultation is to determine whether the proposed action may adversely affect EFH for chinook salmon. Another objective of this EFH consultation is to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse impacts to EFH resulting from the proposed action.

NMFS expects that the effects of this project on chinook salmon EFH are likely to be within the range of effects to listed MCR steelhead considered in the ESA portion of this consultation. Based on that analysis, NMFS finds that the proposed project is likely to adversely affect EFH for chinook salmon.

The FHWA/ODOT have provided for minimization of the potential effects to EFH in the proposed project design. The reasonable and prudent measures and the terms and conditions outline above in section 9 are applicable to chinook salmon EFH. Therefore NMFS recommends that they be adopted as EFH conservation measures. If the FHWA/ODOT adopt this recommendation, potential adverse effects to EFH will be minimized.

The FHWA/ODOT must reinitiate EFH consultation with NMFS if the action is substantially revised in a manner that may adversely affect EFH or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR Section 600.920[k]).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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